

What is claimed is:

1 ~~Sub~~ A connection apparatus for a public network switching system
2 which serves user terminals, the apparatus comprising:
3 a switching unit having a plurality of diverging ports connected to the
4 switching system and a plurality of converging ports adapted for connection to
5 a plurality of internet lines; and
6 a control unit for receiving a request signal of one of said user terminals
7 and establishing in said switching unit a set of branch connections between one
8 of said diverging ports and ones of said converging ports corresponding to the
9 internet lines specified by said request signal, said one diverging port being
10 connected through a connection to said one user terminal established in said
11 switching system.

1 2. The connection apparatus of claim 1, wherein said switching
2 system is configured to serve a plurality of internet lines, and wherein said
3 control unit is configured to request said switching system to establish a
4 plurality of connections between said plurality of converging ports and said
5 plurality of internet lines.

1 3. The connection apparatus of claim 1, wherein each of said plurality
2 of converging ports includes a multiplexer for multiplexing a plurality of user
3 signals into a signal for transmission to one of said internet lines.

1 4. The connection apparatus of claim 3, wherein each of said plurality

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2 of converging ports further includes a demultiplexer for demultiplexing a
3 signal from said one internet line into a plurality of signals for application to
4 said diverging ports.

1 5. The connection apparatus of claim 3, wherein said multiplexer is
2 configured to operate in a TCP/IP protocol mode.

1 6. The connection apparatus of claim 4, wherein said demultiplexer is
2 configured to operate in a TCP/IP protocol mode.

1 7. The connection apparatus of claim 3, wherein said multiplexer is
2 configured to operate in an ATM mode.

1 8. The connection apparatus of claim 4, wherein said demultiplexer
2 multiplexer is configured to operate in an ATM mode.

9. The connection apparatus of claim 3, wherein each of said plurality of diverging ports includes a first line interface unit for interfacing the switching unit to said switching system and each of said converging ports further includes a second line interface unit for interfacing the multiplexer to said one internet line.

1 10. The connection apparatus of claim 9, wherein said second line
2 interface unit is in compliance with communication protocol and transmission
3 speed of one of said user terminals.

1 11. The connection apparatus of claim 9, wherein said second line
2 interface unit is configured to interface the demultiplexer to said one internet
3 line.

1 12. The connection apparatus of claim 1, wherein said control unit
2 comprises:
3 a phone number memory for storing a plurality of phone numbers; and
4 a processor for determining whether a phone number contained in said
5 request signal coincides with one of said phone numbers stored in said phone
6 number memory and establishing said set of branch connections if the phone
7 number coincides with one of the stored phone numbers.

1 13. The connection apparatus of claim 12, wherein said control unit
2 further comprises an ID/password memory for storing a plurality of user
3 identifiers and user passwords, and wherein said processor is configured to:
4 determine whether a user identifier and a user password contained in
5 said request signal coincide with one of the user identifiers and one of the user
6 passwords stored in said ID/password memory if the phone number contained
7 in said request signal does not coincide with any of the stored phone numbers,
8 and
9 establish said set of branch connections if the user identifier and the user
10 password contained in the request signal coincide with one of the stored user
11 identifiers and one of the stored user passwords.

1 14. The connection apparatus of claim 13, wherein said processor is

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2 configured to:

3 determine whether the phone number contained in said request signal
4 coincides with a phone number which is denied access to the internet lines, and
5 establish said set of branch connections if the phone number contained
6 in said request signal does not coincides with said phone number which is
7 denied access to the internet lines.

1 15. A connection apparatus for a public network switching system
2 which serves user terminals via a plurality of ADSL (asymmetric digital
3 subscriber line) modems, the apparatus comprising:
4 a switching unit having a first plurality of diverging ports connected to
5 the switching system, a second plurality of diverging ports connected to said
6 ADSL modems, and a plurality of converging ports adapted for connection to a
7 plurality of internet lines; and
8 a control unit for receiving a request signal of one of said user terminals
9 and establishing in said switching unit a first set of branch connections
10 between one of said first plurality of diverging ports and ones of said
11 converging ports corresponding to the internet lines specified by said request
12 signal and a second set of branch connections between one of said second
13 plurality of diverging ports and said ones of said converging ports, said one of
14 the first plurality of diverging ports being connected through a connection
15 established in said switching system to one of said ADSL modems associated
16 with said one user terminal from which said request signal is received.

1 16. The connection apparatus of claim 15, wherein said switching

2 system is configured to serve a plurality of internet lines, and wherein said
3 control unit is configured to request said switching system to establish a
4 plurality of connections between said plurality of converging ports and said
5 plurality of internet lines.

1 17. A communication system comprising:

2 a public network switching system for establishing a connection between
3 a first plurality of ports to which a plurality of user terminals are connected
4 and a second plurality of ports in response to a request signal from one of said
5 plurality of user terminals;

6 a switching unit having a plurality of diverging ports connected to said
7 second plurality of ports of said switching system and a plurality of converging
8 ports adapted for connection to a plurality of internet lines; and

9 a control unit responsive to said request signal for establishing in said
10 switching unit a set of branch connections between one of said diverging ports
11 and ones of said converging ports corresponding to the internet lines specified
12 by said request signal, said one diverging port being connected to said one user
13 terminal through said connection established in said switching system.

1 18. The communication system of claim 17, wherein said switching
2 system is configured to serve a plurality of internet lines, and wherein said
3 control unit is configured to request said switching system to establish a
4 plurality of connections between said plurality of converging ports and said
5 plurality of internet lines.

1 19. A communication system comprising:
2 a plurality of ADSL (asymmetric digital subscriber line) modems;
3 a public network switching system for establishing a connection between
4 a first plurality of ports to which said ADSL modems are connected and a
5 second plurality of ports in response to a request signal from one of said ADSL
6 modems;
7 a switching unit having a first plurality of diverging ports connected to
8 said second plurality of ports of said switching system, a second plurality of
9 diverging ports connected to said ADSL modems, and a plurality of converging
10 ports adapted for connection to a plurality of internet lines; and
11 a control unit for receiving a request signal of one of said user terminals
12 and establishing in said switching unit a first set of branch connections
13 between one of said first plurality of diverging ports and ones of said
14 converging ports corresponding to the internet lines specified by said request
15 signal and a second set of branch connections between one of said second
16 plurality of diverging ports and said ones of said converging ports, said one of
17 the first plurality of diverging ports being connected through a connection
18 established in said switching system to one of said ADSL modems associated
19 with said one user terminal from which said request signal is received.

1 20. The communication system of claim 19, wherein said switching
2 system is configured to serve a plurality of internet lines, and wherein said
3 control unit is configured to request said switching system to establish a
4 plurality of connections between said plurality of converging ports and said
5 plurality of internet lines.

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